

SEQUENCE LISTING

<110> DRUILHE, PIERRE
DAUBERSIES, PIERRE

<120> MALARIAL PRE-ERYTHROCYTIC STAGE POLYPEPTIDE MOLECULES

<130> 0660-0125-0 PCT

<140> 08/973,462

<141> 1998-02-06

<150> PCT/FR96/00894

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<150> FR 95/07007

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<170> PatentIn Ver. 2.0

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Lys Glu Leu Glu Lys Ala Leu Ser Glu Asp Ser Lys Glu Ile Ile Asp	1265	1270	1275	1280
gca aaa gat gat aca tta gaa aaa gtt att gaa gag gaa cat gat ata				3888
Ala Lys Asp Asp Thr Leu Glu Lys Val Ile Glu Glu Glu His Asp Ile	1285	1290	1295	
acg acg acg ttg gat gaa gtt gta gaa tta aaa gat gtc gaa gaa gac				3936
Thr Thr Thr Leu Asp Glu Val Val Glu Leu Lys Asp Val Glu Glu Asp	1300	1305	1310	
aag atc gaa aaa gta tct gat tta aaa gat ctt gaa gaa gat ata tta				3984
Lys Ile Glu Lys Val Ser Asp Leu Lys Asp Leu Glu Glu Asp Ile Leu	1315	1320	1325	
aaa gaa gta aaa gaa atc aaa gaa ctt gaa agt gaa att tta gaa gat				4032
Lys Glu Val Lys Glu Ile Lys Glu Leu Glu Ser Glu Ile Leu Glu Asp	1330	1335	1340	
tat aaa gaa tta aaa act att gaa aca gat att tta gaa gag aaa aaa				4080
Tyr Lys Glu Leu Lys Thr Ile Glu Thr Asp Ile Leu Glu Glu Lys Lys	1345	1350	1355	1360
gaa ata gaa aaa gat cat ttt gaa aaa ttc gaa gaa gaa gct gaa gaa				4128
Glu Ile Glu Lys Asp His Phe Glu Lys Phe Glu Glu Glu Ala Glu Glu	1365	1370	1375	
ata aaa gat ctt gaa gca gat ata tta aaa gaa gta tct tca tta gaa				4176
Ile Lys Asp Leu Glu Ala Asp Ile Leu Lys Glu Val Ser Ser Leu Glu	1380	1385	1390	

gtt gaa gaa gaa aaa aaa tta gaa gaa gta cac gaa tta aaa gaa gag Val Glu Glu Glu Lys Lys Leu Glu Glu Val His Glu Leu Lys Glu Glu 1395 1400 1405	4224
gta gaa cat ata ata agt ggt gat gcg cat ata aaa ggt ttg gaa gaa Val Glu His Ile Ile Ser Gly Asp Ala His Ile Lys Gly Leu Glu Glu 1410 1415 1420	4272
gat gat tta gaa gaa gta gat gat tta aaa gga agt ata tta gac atg Asp Asp Leu Glu Glu Val Asp Asp Leu Lys Gly Ser Ile Leu Asp Met 1425 1430 1435 1440	4320
tta aag gga gat atg gaa tta ggg gat atg gat aag gaa agt tta gaa Leu Lys Gly Asp Met Glu Leu Gly Asp Met Asp Lys Glu Ser Leu Glu 1445 1450 1455	4368
gat gta aca aca aaa ctt gga gaa aga gtt gaa tcc tta aaa gat gtt Asp Val Thr Thr Lys Leu Gly Glu Arg Val Glu Ser Leu Lys Asp Val 1460 1465 1470	4416
tta tct agt gca tta ggc atg gat gaa gaa caa atg aaa aca aga aaa Leu Ser Ser Ala Leu Gly Met Asp Glu Glu Gln Met Lys Thr Arg Lys 1475 1480 1485	4464
aaa gct caa aga cct aag ttg gaa gaa gta tta tta aaa gaa gag gtt Lys Ala Gln Arg Pro Lys Leu Glu Glu Val Leu Leu Lys Glu Glu Val 1490 1495 1500	4512
aaa gaa gaa cca aag aaa aaa ata aca aaa aag aaa gta agg ttt gat Lys Glu Glu Pro Lys Lys Lys Ile Thr Lys Lys Lys Val Arg Phe Asp 1505 1510 1515 1520	4560
att aag gat aag gaa cca aaa gat gaa ata gta gaa gtt gaa atg aaa Ile Lys Asp Lys Glu Pro Lys Asp Glu Ile Val Glu Val Glu Met Lys 1525 1530 1535	4608
gat gaa gat ata gaa gaa gat gta gaa gaa gat ata gaa gaa gat ata Asp Glu Asp Ile Glu Glu Asp Val Glu Glu Asp Ile Glu Glu Asp Ile 1540 1545 1550	4656
gaa gaa gat aaa gtt gaa gat ata gat gaa gat ata gat gaa gat ata Glu Glu Asp Lys Val Glu Asp Ile Asp Glu Asp Ile Asp Glu Asp Ile 1555 1560 1565	4704
ggt gaa gac aaa gat gaa gtt ata gat tta ata gtc caa aaa gag aaa Gly Glu Asp Lys Asp Glu Val Ile Asp Leu Ile Val Gln Lys Glu Lys 1570 1575 1580	4752
cgc att gaa aag gtt aaa gcg aaa aag aaa aaa tta gaa aaa aaa gtt	4800

Arg. Ile Glu Lys Val Lys Ala Lys Lys Lys Lys Leu Glu Lys Lys Val	
1585	1590 1595 1600
gaa gaa ggt gtt agt ggt ctt aaa aaa cac gta gac gaa gta atg aaa	4848
Glu Glu Gly Val Ser Gly Leu Lys Lys His Val Asp Glu Val Met Lys	
1605 1610 1615	
tat gtt caa aaa att gat aaa gaa gtt gat aaa gaa gta tct aaa gct	4896
Tyr Val Gln Lys Ile Asp Lys Glu Val Asp Lys Glu Val Ser Lys Ala	
1620 1625 1630	
tta gaa tca aaa aat gat gtt act aat gtt tta aaa caa aat caa gat	4944
Leu Glu Ser Lys Asn Asp Val Thr Asn Val Leu Lys Gln Asn Gln Asp	
1635 1640 1645	
ttt ttt agt aaa gtt aaa aac ttc gta aaa aaa tat aaa gta ttt gct	4992
Phe Phe Ser Lys Val Lys Asn Phe Val Lys Lys Tyr Lys Val Phe Ala	
1650 1655 1660	
gca cca ttc ata tct gcc gtt gca gca ttt gca tca tat gta gtt ggg	5040
Ala Pro Phe Ile Ser Ala Val Ala Ala Phe Ala Ser Tyr Val Val Gly	
1665 1670 1675 1680	
ttc ttt aca ttt tct tta ttt tca tca tgt gta aca ata gct tct tca	5088
Phe Phe Thr Phe Ser Leu Phe Ser Ser Cys Val Thr Ile Ala Ser Ser	
1685 1690 1695	
act tac tta tta tca aaa gtt gac aaa act ata aat aaa aat aag gag	5136
Thr Tyr Leu Leu Ser Lys Val Asp Lys Thr Ile Asn Lys Asn Lys Glu	
1700 1705 1710	
aga cgg ttt tat tca ttt gta ttt gat atc ttt aag aat tta aaa cat	5184
Arg Pro Phe Tyr Ser Phe Val Phe Asp Ile Phe Lys Asn Leu Lys His	
1715 1720 1725	
tat tta caa caa atg aaa gaa aaa ttt agt aaa gaa aaa aat aat aat	5232
Tyr Leu Gln Gln Met Lys Glu Lys Phe Ser Lys Glu Lys Asn Asn Asn	
1730 1735 1740	
gta ata gaa gta aca aac aaa gct gag aaa aaa ggt aat gta cag gta	5280
Val Ile Glu Val Thr Asn Lys Ala Glu Lys Lys Gly Asn Val Gln Val	
1745 1750 1755 1760	
aca aat aaa acc gag aaa aca act aaa gtt gat aaa aat aat aaa gta	5328
Thr Asn Lys Thr Glu Lys Thr Thr Lys Val Asp Lys Asn Asn Lys Val	
1765 1770 1775	
cgg aaa aaa aga aga acg caa aaa tca aaa taa	5361
Pro Lys Lys Arg Arg Thr Gln Lys Ser Lys	

1780

1785

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 <211> 1891
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 <213> P. falciparum

<220>
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 Thr Leu Thr Glu Ser Val Asp Asp Asn Lys Asn Leu Glu Glu Ala Glu
 1 5 10 15

gat ata aag gaa aat atc tta tta agt aat ata gaa gaa cca aaa gaa 97
 Asp Ile Lys Glu Asn Ile Leu Leu Ser Asn Ile Glu Glu Pro Lys Glu
 20 25 30

aat att att gac aat tta tta aat aat att gga caa aat tca gaa aaa 145
 Asn Ile Ile Asp Asn Leu Leu Asn Asn Ile Gly Gln Asn Ser Glu Lys
 35 40 45

caa gaa agt gta tca gaa aat gta caa gtc agt gat gaa ctt ttt aat 193
 Gln Glu Ser Val Ser Glu Asn Val Gln Val Ser Asp Glu Leu Phe Asn
 50 55 60

gaa tta tta aat agt gta gat gtt aat gga gaa gta aaa gaa aat att 241
 Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu Val Lys Glu Asn Ile
 65 70 75 80

ttg gag gaa agt caa gtt aat gac gat att ttt aat agt tta gta aaa 289
 Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe Asn Ser Leu Val Lys
 85 90 95

agt gtt caa caa gaa caa caa cac aat gtt gaa gaa aaa gtt gaa gaa 337
 Ser Val Gln Gln Glu Gln Gln His Asn Val Glu Glu Lys Val Glu Glu
 100 105 110

agt gta gaa gaa aat gac gaa gaa agt gta gaa gaa aat gta gaa gaa 385
 Ser Val Glu Glu Asn Asp Glu Glu Ser Val Glu Glu Asn Val Glu Glu
 115 120 125

aat gta gaa gaa aat gac gac gga agt gta gcc tca agt gtt gaa gaa 433
 Asn Val Glu Glu Asn Asp Asp Gly Ser Val Ala Ser Ser Val Glu Glu
 130 135 140

agt_ata gct tca agt gtt gat gaa agt ata gat tca agt att gaa gaa	481
Ser Ile Ala Ser Ser Val Asp Glu Ser Ile Asp Ser Ser Ile Glu Glu	
145 150 155 160	
aat gta gct cca act gtt gaa gaa atc gta gct cca act gtt gaa gaa	529
Asn Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu	
165 170 175	
att gta gct cca agt gtt gta gaa agt gtg gct cca agt gtt gaa gaa	577
Ile Val Ala Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu	
180 185 190	
agt gta gct cca agt gtt gaa gaa agt gta gct gaa aat gtt gaa gaa	625
Ser Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu	
195 200 205	
agt gta gct gaa aat gtt gaa gaa atc gta gct cca agt gtt gaa gaa	673
Ser Val Ala Glu Asn Val Glu Glu Ile Val Ala Pro Ser Val Glu Glu	
210 215 220	
agt gta gct gaa aat gtt gaa gaa agt gta gct gaa aat gtt gaa gaa	721
Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu	
225 230 235 240	
agt gta gct gaa aat gtt gaa gaa agt gta gct gaa aat gtt gaa gaa	769
Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu	
245 250 255	
agt gta gct gaa aat gtt gaa gaa atc gta gct cca act gtt gaa gaa	817
Ser Val Ala Glu Asn Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu	
260 265 270	
agt gta gct cca act gtt gaa gaa att gta gct cca act gtt gaa gaa	865
Ser Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu	
275 280 285	
agt gta gct cca act gtt gaa gaa att gta gtt cca agt gtt gaa gaa	913
Ser Val Ala Pro Thr Val Glu Glu Ile Val Val Pro Ser Val Glu Glu	
290 295 300	
agt gta gct cca agt gtt gaa gaa agt gta gct gaa aat gtt gaa gaa	961
Ser Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu	
305 310 315 320	
agt gta gct gaa aat gtt gaa gaa agt gta gct gaa aat gtt gaa gaa	1009
Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu	
325 330 335	
agt gta gct gaa aat gtt gaa gaa agt gta gct gaa aat gtt gaa gaa	1057

Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu	1105
340 345 350	
atc gta gct cca agt gtt gaa gaa atc gta gct cca act gtt gaa gaa	1105
Ile Val Ala Pro Ser Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu	
355 360 365	
agt gtt gct gaa aac gtt gca aca aat tta tca gac aat ctt tta agt	1153
Ser Val Ala Glu Asn Val Ala Thr Asn Leu Ser Asp Asn Leu Leu Ser	
370 375 380	
aat tta tta ggt ggt atc gaa act gag gaa ata aag gac agt ata tta	1201
Asn Leu Leu Gly Gly Ile Glu Thr Glu Glu Ile Lys Asp Ser Ile Leu	
385 390 395 400	
aat gag ata gaa gaa gta aaa gaa aat gta gtc acc aca ata cta gaa	1249
Asn Glu Ile Glu Glu Val Lys Glu Asn Val Val Thr Thr Ile Leu Glu	
405 410 415	
aaa gta gaa gaa act aca gct gaa agt gta act act ttt agt aat ata	1297
Lys Val Glu Glu Thr Thr Ala Glu Ser Val Thr Thr Phe Ser Asn Ile	
420 425 430	
tta gag gag ata caa gaa aat act att act aat gat act ata gag gaa	1345
Leu Glu Glu Ile Gln Glu Asn Thr Ile Thr Asn Asp Thr Ile Glu Glu	
435 440 445	
aaa tta gaa gaa ctc cac gaa aat gta tta agt gcc gct tta gaa aat	1393
Lys Leu Glu Glu Leu His Glu Asn Val Leu Ser Ala Ala Leu Glu Asn	
450 455 460	
acc gaa agt gaa gag gaa aag aaa gaa gta ata gat gta att gaa gaa	1441
Thr Gln Ser Glu Glu Glu Lys Lys Glu Val Ile Asp Val Ile Glu Glu	
465 470 475 480	
gta aaa gaa gag gtc gct acc act tta ata gaa act gtg gaa cag gca	1489
Val Lys Glu Glu Val Ala Thr Thr Leu Ile Glu Thr Val Glu Gln Ala	
485 490 495	
gaa gaa gag agc gaa agt aca att acg gaa ata ttt gaa aat tta gaa	1537
Glu Glu Glu Ser Glu Ser Thr Ile Thr Glu Ile Phe Glu Asn Leu Glu	
500 505 510	
gaa aat gca gta gaa agt aat gaa aaa gtt gca gag aat tta gag aaa	1585
Glu Asn Ala Val Glu Ser Asn Glu Lys Val Ala Glu Asn Leu Glu Lys	
515 520 525	
tta aac gaa act gta ttt aat act gta tta gat aaa gta gag gaa aca	1633
Leu Asn Glu Thr Val Phe Asn Thr Val Leu Asp Lys Val Glu Glu Thr	

530	535	540	
gta gaa att agc gga gaa agt tta gaa aac aat gaa atg gat aaa gca			1681
Val Glu Ile Ser Gly Glu Ser Leu Glu Asn Asn Glu Met Asp Lys Ala			
545	550	555	560
ttt ttt agt gaa ata ttt gat aat gta aaa gga ata caa gaa aat tta			1729
Phe Phe Ser Glu Ile Phe Asp Asn Val Lys Gly Ile Gln Glu Asn Leu			
565	570	575	
tta aca ggt atg ttt cga agt ata gaa acc agt ata gta atc caa tca			1777
Leu Thr Gly Met Phe Arg Ser Ile Glu Thr Ser Ile Val Ile Gln Ser			
580	585	590	
gaa gaa aag gtt gat ttg aat gaa aat gtg gtt agt tcg att tta gat			1825
Glu Glu Lys Val Asp Leu Asn Glu Asn Val Val Ser Ser Ile Leu Asp			
595	600	605	
aat ata gaa aat atg aaa gaa ggt tta tta aat aaa tta gaa aat att			1873
Asn Ile Glu Asn Met Lys Glu Gly Leu Leu Asn Lys Leu Glu Asn Ile			
610	615	620	
tca agt act gaa ggc gaa			1891
Ser Ser Thr Glu Gly Glu			
625	630		

<210> 4
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 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence:Primer

<400> 4
 gtgatgaact ttttaaatgaa ttattaaa 28

<210> 5
 <211> 29
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence:Primer

<400> 5
 tgttggtctt gttgaacact ttttactaa 29

<210> 6
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Primer

 <400> 6
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 <210> 7
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Syntheticoligonucleotide

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 <210> 8
 <211> 1786
 <212> PRT
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 Ile Lys Lys Cys His Met Arg Glu Lys Ile Asn Lys Tyr Phe Phe Leu
 35 40 45
 Ile Lys Ile Leu Thr Cys Thr Ile Leu Ile Trp Ala Val Gln Tyr Asp
 50 55 60
 Asn Asn Ser Asp Ile Asn Lys Ser Trp Lys Lys Asn Thr Tyr Val Asp
 65 70 75 80

Lys Lys Leu Asn Lys Leu Phe Asn Arg Ser Leu Gly Glu Ser Gln Val
 85 90 95
 Asn Gly Glu Leu Ala Ser Glu Glu Val Lys Glu Lys Ile Leu Asp Leu
 100 105 110
 Leu Glu Glu Gly Asn Thr Leu Thr Glu Ser Val Asp Asp Asn Lys Asn
 115 120 125
 Leu Glu Glu Ala Glu Asp Ile Lys Glu Asn Ile Leu Leu Ser Asn Ile
 130 135 140
 Glu Glu Pro Lys Glu Asn Ile Ile Asp Asn Leu Leu Asn Asn Ile Gly
 145 150 155 160
 Gln Asn Ser Glu Lys Gln Glu Ser Val Ser Glu Asn Val Gln Val Ser
 165 170 175
 Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu
 180 185 190
 Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe
 195 200 205
 Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln Gln His Asn Val Glu
 210 215 220
 Glu Lys Val Glu Glu Ser Val Glu Glu Asn Asp Glu Glu Ser Val Glu
 225 230 235 240
 Glu Asn Val Glu Glu Asn Val Glu Glu Asn Asp Asp Gly Ser Val Ala
 245 250 255
 Ser Ser Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser Ile Asp
 260 265 270
 Ser Ser Ile Glu Glu Asn Val Ala Pro Thr Val Glu Glu Ile Val Ala
 275 280 285
 Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val Glu
 290 295 300
 Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
 305 310 315 320
 Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
 325 330 335
 Glu Asn Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile Val Ala

340

345

350

Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Ser Val Ala
355 360 365

Pro Ser Val Glu Glu Ser Val Glu Glu Asn Val Glu Glu Ser Val Ala
370 375 380

Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
385 390 395 400

Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
405 410 415

Glu Asn Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile Val Ala
420 425 430

Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Ser Val Ala
435 440 445

Pro Ser Val Glu Glu Ser Val Glu Glu Asn Val Glu Glu Ser Val Ala
450 455 460

Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
465 470 475 480

Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
485 490 495

Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
500 505 510

Glu Asn Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile Val Ala
515 520 525

Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Ser Val Ala
530 535 540

Pro Ser Val Glu Glu Ser Val Glu Glu Asn Val Glu Glu Ser Val Ala
545 550 555 560

Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
565 570 575

Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ile Val Ala
580 585 590

Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile Val Ala
595 600 605

Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val Glu
 610 615 620
 Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
 625 630 635 640
 Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ile Val Ala
 645 650 655
 Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile Val Ala
 660 665 670
 Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val Glu
 675 680 685
 Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
 690 695 700
 Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
 705 710 715 720
 Glu Asn Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile Val Ala
 725 730 735
 Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Ser Val Ala
 740 745 750
 Pro Ser Val Glu Glu Ser Val Glu Glu Asn Val Glu Glu Ser Val Ala
 755 760 765
 Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala
 770 775 780
 Glu Asn Val Glu Glu Ser Val Ala Pro Thr Val Glu Glu Ile Val Ala
 785 790 795 800
 Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val Ala
 805 810 815
 Glu Asn Val Ala Thr Asn Leu Ser Asp Asn Leu Leu Ser Asn Leu Leu
 820 825 830
 Gly Gly Ile Glu Thr Glu Glu Ile Lys Asp Ser Ile Leu Asn Glu Ile
 835 840 845
 Glu Glu Val Lys Glu Asn Val Val Thr Thr Ile Leu Glu Asn Val Glu
 850 855 860
 Glu Thr Thr Ala Glu Ser Val Thr Thr Phe Ser Asn Ile Leu Glu Glu

865		870		875		880
Ile Gln Glu Asn Thr Ile Thr Asn Asp Thr Ile Glu Glu Lys Leu Glu		885		890		895
Glu Leu His Glu Asn Val Leu Ser Ala Ala Leu Glu Asn Thr Gln Ser		900		905		910
Glu Glu Glu Lys Lys Glu Val Ile Asp Val Ile Glu Glu Val Lys Glu		915		920		925
Glu Val Ala Thr Thr Leu Ile Glu Thr Val Glu Gln Ala Glu Glu Lys		930		935		940
Ser Ala Asn Thr Ile Thr Glu Ile Phe Glu Asn Leu Glu Glu Asn Ala		945		950		955
Val Glu Ser Asn Glu Asn Val Ala Glu Asn Leu Glu Lys Leu Asn Glu		965		970		975
Thr Val Phe Asn Thr Val Leu Asp Lys Val Glu Glu Thr Val Glu Ile		980		985		990
Ser Gly Glu Ser Leu Glu Asn Asn Glu Met Asp Lys Ala Phe Phe Ser		995		1000		1005
Glu Ile Phe Asp Asn Val Lys Gly Ile Gln Glu Asn Leu Leu Thr Gly		1010		1015		1020
Met Phe Arg Ser Ile Glu Thr Ser Ile Val Ile Gln Ser Glu Glu Lys		1025		1030		1035
Val Asp Leu Asn Glu Asn Val Val Ser Ser Ile Leu Asp Asn Ile Glu		1045		1050		1055
Asn Met Lys Glu Gly Leu Leu Asn Lys Leu Glu Asn Ile Ser Ser Thr		1060		1065		1070
Glu Gly Val Gln Glu Thr Val Thr Glu His Val Glu Gln Asn Val Tyr		1075		1080		1085
Val Asp Val Asp Val Pro Ala Met Lys Asp Gln Phe Leu Gly Ile Leu		1090		1095		1100
Asn Glu Ala Gly Gly Leu Lys Glu Met Phe Phe Asn Leu Glu Asp Val		1105		1110		1115
Phe Lys Ser Glu Ser Asp Val Ile Thr Val Glu Glu Ile Lys Asp Glu		1125		1130		1135

Pro Val Gln Lys Glu Val Glu Lys Glu Thr Val Ser Ile Ile Glu Glu
 1140 1145 1150
 Met Glu Glu Asn Ile Val Asp Val Leu Glu Glu Glu Lys Glu Asp Leu
 1155 1160 1165
 Thr Asp Lys Met Ile Asp Ala Val Glu Glu Ser Ile Glu Ile Ser Ser
 1170 1175 1180
 Asp Ser Lys Glu Glu Thr Glu Ser Ile Lys Asp Lys Glu Lys Asp Val
 1185 1190 1195 1200
 Ser Leu Val Val Glu Glu Val Gln Asp Asn Asp Met Asp Glu Ser Val
 1205 1210 1215
 Glu Lys Val Leu Glu Leu Lys Asn Met Glu Glu Glu Leu Met Lys Asp
 1220 1225 1230
 Ala Val Glu Ile Asn Asp Ile Thr Ser Lys Leu Ile Glu Glu Thr Gln
 1235 1240 1245
 Glu Leu Asn Glu Val Glu Ala Asp Leu Ile Lys Asp Met Glu Lys Leu
 1250 1255 1260
 Lys Glu Leu Glu Lys Ala Leu Ser Glu Asp Ser Lys Glu Ile Ile Asp
 1265 1270 1275 1280
 Ala Lys Asp Asp Thr Leu Glu Lys Val Ile Glu Glu Glu His Asp Ile
 1285 1290 1295
 Thr Thr Thr Leu Asp Glu Val Val Glu Leu Lys Asp Val Glu Glu Asp
 1300 1305 1310
 Lys Ile Glu Lys Val Ser Asp Leu Lys Asp Leu Glu Glu Asp Ile Leu
 1315 1320 1325
 Lys Glu Val Lys Glu Ile Lys Glu Leu Glu Ser Glu Ile Leu Glu Asp
 1330 1335 1340
 Tyr Lys Glu Leu Lys Thr Ile Glu Thr Asp Ile Leu Glu Glu Lys Lys
 1345 1350 1355 1360
 Glu Ile Glu Lys Asp His Phe Glu Lys Phe Glu Glu Glu Ala Glu Glu
 1365 1370 1375
 Ile Lys Asp Leu Glu Ala Asp Ile Leu Lys Glu Val Ser Ser Leu Glu
 1380 1385 1390
 Val Glu Glu Glu Lys Lys Leu Glu Glu Val His Glu Leu Lys Glu Glu

1395

1400

1405

Val Glu His Ile Ile Ser Gly Asp Ala His Ile Lys Gly Leu Glu Glu
1410 1415 1420

Asp Asp Leu Glu Glu Val Asp Asp Leu Lys Gly Ser Ile Leu Asp Met
1425 1430 1435 1440

Leu Lys Gly Asp Met Glu Leu Gly Asp Met Asp Lys Glu Ser Leu Glu
1445 1450 1455

Asp Val Thr Thr Lys Leu Gly Glu Arg Val Glu Ser Leu Lys Asp Val
1460 1465 1470

Leu Ser Ser Ala Leu Gly Met Asp Glu Glu Gln Met Lys Thr Arg Lys
1475 1480 1485

Lys Ala Gln Arg Pro Lys Leu Glu Glu Val Leu Leu Lys Glu Glu Val
1490 1495 1500

Lys Glu Glu Pro Lys Lys Lys Ile Thr Lys Lys Lys Val Arg Phe Asp
1505 1510 1515 1520

Ile Lys Asp Lys Glu Pro Lys Asp Glu Ile Val Glu Val Glu Met Lys
1525 1530 1535

Asp Glu Asp Ile Glu Glu Asp Val Glu Glu Asp Ile Glu Glu Asp Ile
1540 1545 1550

Glu Glu Asp Lys Val Glu Asp Ile Asp Glu Asp Ile Asp Glu Asp Ile
1555 1560 1565

Gly Glu Asp Lys Asp Glu Val Ile Asp Leu Ile Val Gln Lys Glu Lys
1570 1575 1580

Arg Ile Glu Lys Val Lys Ala Lys Lys Lys Lys Leu Glu Lys Lys Val
1585 1590 1595 1600

Glu Glu Gly Val Ser Gly Leu Lys Lys His Val Asp Glu Val Met Lys
1605 1610 1615

Tyr Val Gln Lys Ile Asp Lys Glu Val Asp Lys Glu Val Ser Lys Ala
1620 1625 1630

Leu Glu Ser Lys Asn Asp Val Thr Asn Val Leu Lys Gln Asn Gln Asp
1635 1640 1645

Phe Phe Ser Lys Val Lys Asn Phe Val Lys Lys Tyr Lys Val Phe Ala
1650 1655 1660

Ala Pro Phe Ile Ser Ala Val Ala Ala Phe Ala Ser Tyr Val Val Gly
 1665 1670 1675 1680

Phe Phe Thr Phe Ser Leu Phe Ser Ser Cys Val Thr Ile Ala Ser Ser
 1685 1690 1695

Thr Tyr Leu Leu Ser Lys Val Asp Lys Thr Ile Asn Lys Asn Lys Glu
 1700 1705 1710

Arg Pro Phe Tyr Ser Phe Val Phe Asp Ile Phe Lys Asn Leu Lys His
 1715 1720 1725

Tyr Leu Gln Gln Met Lys Glu Lys Phe Ser Lys Glu Lys Asn Asn Asn
 1730 1735 1740

Val Ile Glu Val Thr Asn Lys Ala Glu Lys Lys Gly Asn Val Gln Val
 1745 1750 1755 1760

Thr Asn Lys Thr Glu Lys Thr Thr Lys Val Asp Lys Asn Asn Lys Val
 1765 1770 1775

Pro Lys Lys Arg Arg Thr Gln Lys Ser Lys
 1780 1785

<210> 9
 <211> 630
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Polypeptide

<400> 9
 Thr Leu Thr Glu Ser Val Asp Asp Asn Lys Asn Leu Glu Glu Ala Glu
 1 5 10 15

Asp Ile Lys Glu Asn Ile Leu Leu Ser Asn Ile Glu Glu Pro Lys Glu
 20 25 30

Asn Ile Ile Asp Asn Leu Leu Asn Asn Ile Gly Gln Asn Ser Glu Lys
 35 40 45

Gln Glu Ser Val Ser Glu Asn Val Gln Val Ser Asp Glu Leu Phe Asn
 50 55 60

Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu Val Lys Glu Asn Ile
 65 70 75 80

Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe Asn Ser Leu Val Lys
 85 90 95

Ser Val Gln Gln Glu Gln Gln His Asn Val Glu Glu Lys Val Glu Glu
 100 105 110

Ser Val Glu Glu Asn Asp Glu Glu Ser Val Glu Glu Asn Val Glu Glu
 115 120 125

Asn Val Glu Glu Asn Asp Asp Gly Ser Val Ala Ser Ser Val Glu Glu
 130 135 140

Ser Ile Ala Ser Ser Val Asp Glu Ser Ile Asp Ser Ser Ile Glu Glu
 145 150 155 160

Asn Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu
 165 170 175

Ile Val Ala Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu
 180 185 190

Ser Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu
 195 200 205

Ser Val Ala Glu Asn Val Glu Glu Ile Val Ala Pro Ser Val Glu Glu
 210 215 220

Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu
 225 230 235 240

Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu
 245 250 255

Ser Val Ala Glu Asn Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu
 260 265 270

Ser Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu
 275 280 285

Ser Val Ala Pro Thr Val Glu Glu Ile Val Val Pro Ser Val Glu Glu
 290 295 300

Ser Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu
 305 310 315 320

Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu
 325 330 335

Ser Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu

	340		345		350
Ile Val Ala Pro Ser Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu	355		360		365
Ser Val Ala Glu Asn Val Ala Thr Asn Leu Ser Asp Asn Leu Leu Ser	370		375		380
Asn Leu Leu Gly Gly Ile Glu Thr Glu Glu Ile Lys Asp Ser Ile Leu	385		390		395
Asn Glu Ile Glu Glu Val Lys Glu Asn Val Val Thr Thr Ile Leu Glu	405		410		415
Lys Val Glu Glu Thr Thr Ala Glu Ser Val Thr Thr Phe Ser Asn Ile	420		425		430
Leu Glu Glu Ile Gln Glu Asn Thr Ile Thr Asn Asp Thr Ile Glu Glu	435		440		445
Lys Leu Glu Glu Leu His Glu Asn Val Leu Ser Ala Ala Leu Glu Asn	450		455		460
Thr Gln Ser Glu Glu Glu Lys Lys Glu Val Ile Asp Val Ile Glu Glu	465		470		475
Val Lys Glu Glu Val Ala Thr Thr Leu Ile Glu Thr Val Glu Gln Ala	485		490		495
Glu Glu Glu Ser Glu Ser Thr Ile Thr Glu Ile Phe Glu Asn Leu Glu	500		505		510
Glu Asn Ala Val Glu Ser Asn Glu Lys Val Ala Glu Asn Leu Glu Lys	515		520		525
Leu Asn Glu Thr Val Phe Asn Thr Val Leu Asp Lys Val Glu Glu Thr	530		535		540
Val Glu Ile Ser Gly Glu Ser Leu Glu Asn Asn Glu Met Asp Lys Ala	545		550		555
Phe Phe Ser Glu Ile Phe Asp Asn Val Lys Gly Ile Gln Glu Asn Leu	565		570		575
Leu Thr Gly Met Phe Arg Ser Ile Glu Thr Ser Ile Val Ile Gln Ser	580		585		590
Glu Glu Lys Val Asp Leu Asn Glu Asn Val Val Ser Ser Ile Leu Asp	595		600		605

Asn Ile Glu Asn Met Lys Glu Gly Leu Leu Asn Lys Leu Glu Asn Ile
 610 615 620

Ser Ser Thr Glu Gly Glu
 625 630

<210> 10
 <211> 50
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Polypeptide

<400> 10
 Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
 1 5 10 15
 Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
 20 25 30
 Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln Gln His Asn Val
 35 40 45
 Glu Glu
 50

<210> 11
 <211> 100
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Polypeptide

<400> 11
 Val Glu Glu Ser Val Glu Glu Asn Asp Glu Glu Ser Val Glu Glu Asn
 1 5 10 15
 Val Glu Glu Asn Val Glu Asn Asn Asp Asp Gly Ser Val Ala Ser Ser
 20 25 30
 Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser Ile Asp Ser Ser
 35 40 45
 Ile Glu Glu Asn Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr
 50 55 60

Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Lys Cys Ala Pro Ser
65. 70 75 80

Val Glu Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Met
85 90 95

Leu Lys Glu Arg
100

<210> 12

<211> 47

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 12

Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
1 5 10 15

Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
20 25 30

Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln His Asn
35 40 45

<210> 13

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 13

Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu
1 5 10 15

Val Lys Glu Asn Ile Leu Glu Glu Ser Gln
20 25

<210> 14

<211> 27

<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Polypeptide

<400> 14
Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe Ser Asn Ser Leu Val
1 5 10 15
Lys Ser Val Gln Gln Glu Gln Gln His Asn Val
20 25

<210> 15
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Polypeptide

<400> 15
Val Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val
1 5 10 15
Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser Val
20 25

<210> 16
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Polypeptide

<400> 16
Leu Leu Ser Asn Ile Glu Glu Pro Lys Glu Asn Ile Ile Asp Asn Leu
1 5 10 15
Leu Asn Asn Ile
20

<210> 17
<211> 4
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Polypeptide

<400> 17

Val Glu Glu Ser

1

<210> 18

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Polypeptide

<400> 18

Val Glu Glu Asn

1

<210> 19

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Polypeptide

<400> 19

Val Glu Glu Ile

1

<210> 20

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Polypeptide

<400> 20

Val Ala Pro Ser

1

<210> 21

<211> 56

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 21

Val Glu Glu Lys Val Glu Glu Ser Val Glu Glu Asn Asp Glu Glu Ser
1 5 10 15

Val Glu Glu Asn Val Glu Glu Asn Val Glu Glu Asn Asp Asp Gly Ser
20 25 30

Val Ala Ser Ser Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser
35 40 45

Ile Asp Ser Ser Ile Glu Glu Asn
50 55

<210> 22

<211> 540

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 22

Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Ser
1 5 10 15

Val Ala Pro Ser Val Glu Glu Ser Val Glu Glu Asn Val Glu Glu Ser
20 25 30

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
35 40 45

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ile
50 55 60

Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile
65 70 75 80

Val Ala Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu Ser
85 90 95

Val Glu Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
100 105 110

Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	
		115					120						125			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ile	
		130				135							140			
Val	Ala	Pro	Thr	Val	Glu	Glu	Ile	Val	Ala	Pro	Thr	Val	Glu	Glu	Ile	
145					150				155						160	
Val	Ala	Pro	Ser	Val	Val	Glu	Ser	Val	Ala	Pro	Ser	Val	Glu	Glu	Ser	
			165						170					175		
Val	Glu	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	
			180				185						190			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	
		195					200						205			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	
210						215							220			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ile	
225					230				235						240	
Val	Ala	Pro	Thr	Val	Glu	Glu	Ile	Val	Ala	Pro	Thr	Val	Glu	Glu	Ile	
			245						250					255		
Val	Ala	Pro	Ser	Val	Val	Glu	Ser	Val	Ala	Pro	Ser	Val	Glu	Glu	Ser	
			260						265					270		
Val	Glu	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	
		275					280						285			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	
		290				295							300			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ile	Val	Ala	Pro	Thr	Val	Glu	Glu	Ile	
305					310				315						320	
Val	Ala	Pro	Thr	Val	Glu	Glu	Ile	Val	Ala	Pro	Ser	Val	Val	Glu	Ser	
			325						330					335		
Val	Ala	Pro	Ser	Val	Glu	Glu	Ser	Val	Glu	Glu	Asn	Val	Glu	Glu	Ser	
			340				345						350			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	Val	Ala	Glu	Asn	Val	Glu	Glu	Ser	
		355					360						365			
Val	Ala	Glu	Asn	Val	Glu	Glu	Ile	Val	Ala	Pro	Thr	Val	Glu	Glu	Ile	

370

375

380

Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Ser
385 390 395 400

Val Ala Pro Ser Val Glu Glu Ser Val Glu Glu Asn Val Glu Glu Ser
405 410 415

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
420 425 430

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ile
435 440 445

Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile
450 455 460

Val Ala Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu Ser
465 470 475 480

Val Glu Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
485 490 495

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
500 505 510

Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Glu Glu Ser
515 520 525

Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Asn
530 535 540

<210> 23

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 23

Asp Glu Asp Ile Glu Glu Asp Val Glu Glu Asp Ile Glu Glu Asp Ile
1 5 10 15

Glu Glu Asp Lys Val Glu Asp Ile Asp Glu Asp Ile Asp Glu Asp Ile
20 25 30

Gly Glu Asp Lys Asp Glu Val
35

<210> 24

<211> 56

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 24

Val Glu Glu Lys Val Glu Glu Ser Val Glu Glu Asn Asp Glu Glu Ser
1 5 10 15

Val Glu Glu Asn Val Glu Glu Asn Val Glu Glu Asn Asp Asp Gly Ser
20 25 30

Val Ala Ser Ser Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser
35 40 45

Ile Asp Ser Ser Ile Glu Glu Asn
50 55

<210> 25

<211> 212

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 25

Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ile
1 5 10 15

Val Ala Pro Ser Val Val Glu Ser Val Ala Pro Ser Val Glu Glu Ser
20 25 30

Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
35 40 45

Val Ala Glu Asn Val Glu Glu Ile Val Ala Pro Ser Val Glu Glu Ser
50 55 60

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
65 70 75 80

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
85 90 95

Val Ala Glu Asn Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ser
100 105 110

Val Ala Pro Thr Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ser
115 120 125

Val Ala Pro Thr Val Glu Glu Ile Val Val Pro Ser Val Glu Glu Ser
130 135 140

Val Ala Pro Ser Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
145 150 155 160

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ser
165 170 175

Val Ala Glu Asn Val Glu Glu Ser Val Ala Glu Asn Val Glu Glu Ile
180 185 190

Val Ala Pro Ser Val Glu Glu Ile Val Ala Pro Thr Val Glu Glu Ser
195 200 205

Val Ala Glu Asn
210

<210> 26

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 26

Val Val Glu Ser

1

<210> 27

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 27
Val Ala Glu Asn
1

<210> 28
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Polypeptide

<400> 28
Val Ala Pro Thr

<210> 29
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Polypeptide

<400> 19
Val Val Pro Ser
1